

CLAIMS:

1. A method for producing a lube oil lube basestock from a lube oil boiling range feedstream containing at least about 50 wt.% wax, and at least one polar compound containing sulfur or nitrogen comprising:
 - a) contacting the lube oil boiling range feedstream with a hydrotreating catalyst in a first reaction stage operated under conditions effective at removing at least a portion of the at least one polar compound from said lube oil boiling range feedstream to produce a hydrotreated feed;
 - b) contacting at least a portion of said hydrotreated feed with an amorphous hydroisomerization catalyst in a second reaction stage operated under effective hydroisomerization conditions to produce a second stage effluent; and
 - c) contacting at least a portion of said second stage effluent with a hydrodewaxing catalyst in a third reaction stage operated under conditions effective for producing at least one lube oil basestock wherein said catalyst comprises at least one molecular sieve and at least one amorphous material having at least one active metal hydrogenation component dispersed thereon.

2. The method according to claim 1 wherein said lube oil boiling range feedstream is derived from a mineral or synthetic source or mixtures thereof.
3. The method according to claim 2 wherein said hydrotreating catalyst is selected from bulk and conventional hydrotreating catalysts comprising at least one Group VI metal and at least one Group VIII metal.
4. The method according to claim 3 wherein said hydrotreating catalyst is selected from NebulaTM, RT-721, KF-840, KF-848, DN 190, SentinelTM.
5. The method according to claim 4 wherein said conditions effective at removing at least a portion at least one contaminant from said lube oil boiling range feedstream include temperatures of from 150 to 400°C, a hydrogen partial pressure of from 1480 to 20786 kPa (200 to 3000 psig), a space velocity of from 0.1 to 10 liquid hourly space velocity (LHSV), and a hydrogen to feed ratio of from 89 to 1780 m³/m³ (500 to 10000 scf/B), preferably 178 to 890 m³/m³.
6. The method according to claim 5 wherein said amorphous hydroisomerization catalysts contained in said second stage comprises a

porous refractory metal oxide support and a catalytic component selected from at least one of Group VIB, Group VIIB, Group VIII metals, and mixtures thereof.

7. The method according to claim 5 wherein said hydrodewaxing catalyst comprises at least one molecular sieve and at least one amorphous material comprising a mesoporous support.
8. The method according to claim 6 wherein said amorphous material of said dewaxing catalyst further comprises at least one promoter or dopant selected from the group consisting of halogen, phosphorous, boron, yttria, rare-earth oxides and magnesia preferably halogen, yttria, magnesia.
9. The method according to claim 7 wherein said effective hydroisomerization conditions are selected such that the wax content of said hydrotreated feed is reduced to below about 40 wt.%, based on the hydrotreated feed.
10. The method according to claim 1 wherein said molecular sieve is selected from, ZSM-22, ZSM-23, ZSM-35, ZSM-48, ZSM-57, SSZ-31,

SAPO-11, SAPO-31, SAPO-41, MAPO-11, ECR-42, synthetic Ferrierites, and mixtures thereof.

11. The method according to claim 1 wherein said at least one molecular sieve is selected from 10 member ring, unidirectional, inorganic oxide molecular sieves.
12. The method according to claim 10 wherein said molecular sieve is combined with a suitable porous binder or matrix material.
13. The method according to claim 10 wherein said at least one active metal hydrogenation component of said amorphous material of said hydrodewaxing catalyst is selected from Group VIB, Group VIIB, Group VIII metals, and mixtures thereof.
14. The method according to claim 13 wherein said first, second, and third stages comprise one or more reactors or reaction zones each of which comprise one or more catalyst beds that each contain the same or different catalyst.

15. The method according to claim 14 wherein said catalyst beds are selected from fixed beds, fluidized beds, ebullating beds, slurry beds, and moving beds.
16. The method according to claim 18 wherein the amorphous material of said dewaxing catalyst further comprises a promoter selected from the group consisting of halogen, phosphorous, boron, yttria, rare-earth oxides and magnesia.
17. The method according to claim 16 wherein the at least one lube oil basestock produced by the process of the present invention comprises at least about 75 wt.% of iso-paraffins and has a "Free Carbon Index" (or FCI) lower than about 12.
18. The method according to claim 1 wherein said second and third reaction stages are combined to form one second reaction stage wherein at least a portion of said hydrotreated feed is contacted with a catalyst system in a second reaction stage operated under conditions effective at producing at least one lube oil boiling range basestock wherein said catalyst system comprises at least one first catalyst selected from amorphous hydroisomerization catalyst and at least one second catalyst selected

from hydrodewaxing catalysts comprising at least one molecular sieve and an amorphous material having at least one active metal hydrogenation component dispersed thereon.

19. The method according to claim 18 wherein said catalyst system is arranged in such a manner that when said hydrotreated feed contacts said catalyst system, it contacts the second catalyst first.
20. A method for producing a lube oil lube basestock from a lube oil boiling range feedstream containing at least about 50 wt.% wax, and at least one polar compound containing sulfur or nitrogen comprising:
 - a) contacting the lube oil boiling range feedstream with a hydrotreating catalyst in a first reaction stage operated under conditions effective at removing at least a portion of the at least one polar compound from said lube oil boiling range feedstream to produce a hydrotreated feed; and
 - b) contacting at least a portion of said hydrotreated feed with a catalyst system in a second reaction stage operated under conditions effective at producing at least one lube oil boiling range basestock wherein said catalyst system comprises at least one first catalyst selected from amorphous hydroisomerization catalyst and at least one second

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catalyst selected from hydrodewaxing catalysts comprising at least one molecular sieve and at least one amorphous material having at least one active metal hydrogenation component dispersed thereon.

21. The method according to claim 20 wherein said catalyst system is arranged in such a manner that when said at least a portion of said hydrotreated feed contacts said catalyst system, it contacts the second catalyst first.